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CENTRAL INTELLIGENCE AGENCY 25X1 REPORT [redacted]

INFORMATION REPORT

COUNTRY USSR

DATE DISTR. 21 December 1948

SUBJECT Production of Guided Missiles at Kaliningrad near Moscow

25X1

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THIS IS UNEVALUATED INFORMATION FOR THE RESEARCH USE OF TRAINED INTELLIGENCE ANALYSTS

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[redacted] Comment: The following information is not being given general distribution because the figures for the rate of production and the number of workers are believed to be improbable. The figure for production in this one installation is <u>twice the size</u> of the best previous estimate for the entire USSR by 1951. However, [redacted] it is being forwarded to you for whatever value it may have.)

1. The new guided missile works in Kaliningrad, near Moscow, is now producing 7,000 - 8,000 complete V-1, V-2, V-4, and A-9 (Neptune rockets) missiles per month.

2. The Kaliningrad factory employs approximately 1,800 German V-weapon engineers and 20,000 - 28,000 Soviets. Most of the Soviets are ex-PWs who are in Kaliningrad as punishment for having allowed themselves to be taken prisoners during the war.

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MANPOWER AND MATERIALS REQUESTED FOR CERTAIN GUIDED MISSILES

The material and manpower requirements to produce the V-1, V-2 (A-4) and A-9 missiles are presented in the enclosed charts.

The material requirements are based on the amounts that would be necessary to produce one and eight thousand of the different missiles. The man-hours to produce these various missiles have been determined on the middle eight thousand of a total production run of twenty thousand units.

In the limited time allotted to accomplish this project the requirements indicated are only rough estimates and should be used as such. The following paragraphs will explain in general as to how the estimates were calculated.

The V-1 missile was produced in limited quantities by several U.S. manufacturers. The materials and manpower requirements were estimated from actual production experience and several proposed plans for the mass production of the V-1 missile.

The Germans had considerable experience in producing the V-2 (A-4) missile. Estimates of the total production vary from 5900 to 10,000 units. The manpower required to produce a missile vary from 4,000 to 8,000 man-hours. Keeping in mind these estimates and talking to several German scientists that worked on the V-2 (A-4), the estimate of this office is approximately 4500 direct man-hours per unit. Approximately 2240 man-hours will be required in final assembly and testing, 2260 man-hours for the manufacture of the control and propulsion units.

No specific information was available on the V-2 (A-4) missile with which to prepare a list of material requirements. However, a reasonably accurate list of materials was available for the "Wasserfall" AA missile. Taking into account the difference in structural weights of the two missiles the material requirements for the V-2 (A-4) was prepared.

The A-9 missile was only a project and never placed in production by the Germans. However, the construction was similar to the V-2 (A-4) with the exception that wings were added to the fuselage to increase the range. The main fuel was to be nitric acid rather than liquid oxygen and alcohol. This change in fuel would reduce the material weight for the fuel tanks. Taking into account the above differences, the raw material requirements for the V-2 (A-4) and A-9 will be approximately the same. The semi-finished material requirements will show some difference, but of no serious consequence, when making a rough estimate.

The manpower requirements for the A-9 will be more than the V-2 (A-4) because of the addition of wings to the fuselage and a more complicated control system. To produce one A-9 missile will require 5000 direct man-hours. This includes 2400 man-hours for final assembly and test, 2600 man-hours for the control and propulsion units.

RAW MATERIAL REQUIREMENTS

TO PRODUCE 1 & 8,000 V-1'S INCLUDING 30% FOR TURNING & SCRAP

(LESS WARHEAD & FUEL)

	Material for 1 Missile (Pds.)	Material for 8000 Missiles (Tons)
1. Aluminum Sheet, Forgings, Castings	122.4	[illegible]
2. Steel SAE 1020 Sheet, Tube, Bars	1680.0	6720.0
3. Steel SAE 4130 Forgings, Bars, Sheets	700.8	2803.2
4. Brass Forgings, Bars, Sheets	4.0	16.0
5. Bronze Bars	4.8	19.2
6. Manganese	.8	[illegible]
7. Copper	.32	1.28
8. Dural Bars, Sheets	.32	1.28
9. Zinc Castings	.16	.64
10. Duronze Bars	.16	.64
Approximate Total	2513.76	10,055.04

DIRECT MAN HOURS REQUIRED TO ASSEMBLE ONE (1) MISSILE ASSUMING PRODUCTION OF 20,000 PER YEAR REQUIREMENTS ESTIMATED FOR MIDDLE 8,000 UNITS

Airframe & Final Assembly	460	Direct Manhours
Control & Propulsion Unit	160	" "
Approximate Total	620	" "

Approximate Structural Weight of Missile 1700#

RAW MATERIALS REQUIREMENTS (TONS)

FOR 8,000 MISSILES V-2 (A-4) & A-9

INCLUDING 30% FOR TURNING & SCRAP (LESS WARHEAD & FUEL)

	[illegible]		[illegible]		[illegible]	
	A-4	A-9	A-4	A-9	A-4	A-9
Rolled Unalloyed Steel	8,300	4,800	9,600	9,600	1,576	1,576
Rolled Alloyed Steel	1,500	1,500	11,600	11,600	140	140
Cast Unalloyed Steel					1.8	1.8
Chromium			110	110	.90	.90
Nickel			51.6	51.6	1.8	1.8
Molybdenum			9.6	9.6	1.20	1.8
Copper			103.6	103.6	1360	1360
Manganese	51.6	51.6	260	260	1.8	1.8
Vanadium			(1.8 lbs)	(1.8 lbs)	(1.8 lbs)	(1.8 lbs)
Constantan					(.05lbs)	(.05 lbs
Silver					.17	.17
Gold			(2 lbs)	(2 lbs)		
Al and Al Alloys			476	476	680	680
Antimony					34.7	34.7
Lead			5.6	5.6	66	66
Cadmium					.04	.04
Nickel					19.2	19.2
Zinc			76	76	152	152
Tin			4	4	22.8	22.8
Rubber			76	76	48	48
Synthetic Material			92	92	280	280
Selenium					.02	.02
Graphite	476	476				

MATERIAL REQUIREMENTS (LBS)

TO PRODUCE 1 MISSILE - MECHANICAL PARTS - SEMI-FINISHED (LESS WARHEAD & FUEL)

	Steel Unalloyed SAE T1330		Steel Alloyed SAE 6150		Corrosion Resistant Stainless St		Structural Steel		Structural Steel SAE 1035		Automatic Steel SAE 1020		Aluminum 58		Aluminum 99.5		Cast Al Alloy		Brass		Synthetic Packing Mat'l		Rubber Semi-Fin'sd Products		Graphite		Totals	
	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9	A-4	A-9
1 Sheet	485	450					1080	900	126	125																	1691	1475
2 Light Rate	390	300			795	700	1040	800	246	200					.5	.5											2471.5	2000.5
3 Heavy Plate							6.2	6.2	300	200					26.5	26.5											332.7	232.7
4 Round Blanks (light plate)	218	218			250	250																					468	468
5 Round Blanks (heavy plate)	1220	800																									1220	800
6 Strip (2mm)							195	195																			195	195
7 Rods, Round	50.5	50.5	20.5	20.5			7.5	7.5	55	55	22	22					4.7	4.7									160.3	160.3
8 Bar, Flat	45	45	45.6	45.6			3.3	3.3																			93.9	93.9
9 Hex. Rods									33	33	61	61															94	94
10 L&I Profile	15.8	15.8					50	50																			65.8	65.8
11 Elec-Weld Tube	65	65			70	70			76	76																	211	211
12 Seamless Drawn Tube					12	12			69	69																	81	81
13 Forgings									1830	1030																	1830	1030
14 Castings																		50	45.5	80							45.5	130
15 Welding Mat'l	4.8	4.8	4.8	4.8																							9.1	9.1
16 Standard Part (Bolts etc)					70	70							57	57													127	127
17 Miscellaneous															1.42	1.42					23	23	19	19	120	120	163.42	163.42
Totals	2474.1	1949.1	70.4	70.4	1207	1102	2382.1	1902.1	2735	1738	83	83	57	57	28.42	28.42	4.7	54.7	45.5	80	23	23	19	19	120	120	9259.22	7336.72

DIRECT MAN HOURS REQUIRED TO ASSEMBLE ONE (1) MISSILE

(ASSUMING PRODUCTION OF 20,000 PER YEAR - REQUIREMENTS ESTIMATED FOR MIDDLE 8,000 UNITS)

V-2 (A-4)

Manpower Requirements to Assemble 1 Missile

Final Assembly	2240 Direct Man Hours
Control & Propulsion Unit	2260 " " "
Approximate Total	4500 " " "

(A-9)

Manpower Requirements to Assemble 1 Missile

Final Assembly	2500 Direct Man Hours
Control & Propulsion Unit	2500 " " "
Approximate Total	5000 " " "

Approximate Structural Weight

V-2 (A-4) = 6300#

A-9 = 5500#